Claim Amendments

This listing of claims replaces all prior versions and listings of claims in the application.

1. (Currently Amended) A pressure relief and topping valve for use in exhausting over-pressure in an inflatable device as well as topping off or inflating the inflatable device, the valve comprising:

   (a) a valve body having a fluid passage therein with an internal shoulder;

   (b) a first poppet having a seal seated ~~into~~ entirely within a recessed seat therein and biased against the internal shoulder by a first spring that operates independently, the first poppet ~~and seal~~ having an aperture therein surrounded by the recessed seat;

   (c) a second poppet biased ~~into~~ toward the aperture against the seal by a second spring that operates independently from the first spring;

   (d) in which the seal comprises an axially directed seating surface for sealable seating against the internal shoulder when the first poppet is biased against the internal shoulder, and a radially inwardly directed sealing shoulder for sealable seating against the second poppet when the second poppet is biased ~~into the aperture~~ by the second spring.

2-5. (Cancelled)

6. (Currently Amended) The pressure relief and topping valve of claim 1 wherein the first poppet ~~includes a recessed seat with a poppet aperture extending therein extending through the first poppet, the first poppet further including~~ further includes a plurality of outward stops extending from the poppet and defining air flow passages therebetween.

7. (Previously Presented) The pressure relief and topping valve of claim 6 wherein the first spring is positioned between the first poppet and a first spring retainer for biasing the first poppet against the internal shoulder.

8. (Currently Amended) The pressure relief and topping valve of claim 7 wherein the second poppet includes a stem extending to a head with a neck therebetween[[,]] ~~where the poppet seats within the poppet aperture and selectively against the seal~~.

9. (Original) The pressure relief and topping valve of claim 8 wherein the second spring is positioned between the first poppet and a second spring retainer for biasing the second poppet against the seal.

10. (Currently Amended) A pressure relief and topping valve for use in exhausting over-pressure in an inflatable device as well as topping off or inflating the inflatable device, the valve comprising:

(a) a valve body having a fluid passage therein with an internal shoulder;

(b) a first poppet having a recessed seat with a poppet aperture extending therein extending through the first poppet, the first poppet further including a plurality of outward stops extending from the poppet;

(c) a first spring retainer for holding the first poppet within the fluid passage;

(d) a first spring positioned between the first poppet and the first spring retainer for biasing the first poppet against the internal shoulder, the first spring being independent;

(e) a seal having a seal aperture therein aligned with and having a greater internal diameter than the poppet aperture when the seal is seated ~~in~~ entirely within the recessed seat and selectively against the internal shoulder, the seal comprising an axially directed seating surface for sealable seating against the internal shoulder when the first poppet is biased against the internal shoulder, and a radially inwardly directed sealing shoulder for sealable seating against a second poppet when the second poppet is biased into the seal aperture by a second spring;

(f) the second poppet having a stem extending to a head with a neck therebetween[[,]] ~~where the poppet seats within the poppet aperture and selectively against the seal~~;

(g) a second spring retainer for holding the second poppet within the fluid passage; and

(h) the second spring being positioned between the first poppet and the second spring retainer for biasing the second poppet against the seal, the second spring operating independently from the first spring.

11-19. (Cancelled)

20. (Currently Amended) ~~The valve of claim 19,~~ A bi-directional valve comprising:

(a) a valve body comprising a radially inwardly directed shoulder and defining a fluid passage;

(b) a first poppet biased toward the shoulder by a first spring and comprising a recessed seat circumferentially surrounding an aperture in which the recessed seat comprises a circumferential tapered wall terminating at a base surface surrounding the aperture;

(c) a second poppet biased toward the aperture by a second spring; and

(d) a seal seated into the recessed seat, comprising an axially directed first surface for sealing the first poppet against the shoulder, and a radially inwardly directed second surface for sealing the second poppet within the aperture.

21. (Currently Amended) ~~The valve of claim 19,~~ A bi-directional valve comprising:

(a) a valve body comprising a radially inwardly directed shoulder and defining a fluid passage;

(b) a first poppet biased toward the shoulder by a first spring and comprising a recessed seat circumferentially surrounding an aperture;

(c) a second poppet biased toward the aperture by a second spring; and

(d) a seal seated into the recessed seat, comprising an axially directed first surface for sealing the first poppet against the shoulder, and a radially inwardly directed second surface for sealing the second poppet within the aperture, in which the seal further comprises a radially outwardly

extending valley located axially between the second surface and the second poppet and radially inward from the first surface.

22. (New) A bi-directional valve comprising:

(a) a valve body comprising a radially inwardly directed shoulder and defining a fluid passage;

(b) a first poppet biased toward the shoulder by a first spring and comprising a recessed seat circumferentially surrounding an aperture;

(c) a second poppet biased toward the aperture by a second spring; and

(d) a seal seated entirely within the recessed seat, comprising an axially directed first surface for sealing the first poppet against the shoulder, and a radially inwardly directed second surface for sealing the second poppet.

23. (New) The valve of claim 22, in which the recessed seat comprises a circumferential tapered wall terminating at a base surface surrounding the aperture.

24. (New) The valve of claim 22, in which the seal further comprises a radially outwardly extending valley located axially between the second surface and the second poppet and radially inward from the first surface.

25. (New) A bi-directional valve comprising:

(a) a valve body comprising a radially inwardly directed shoulder and defining a fluid passage;

(b) a first poppet biased toward the shoulder by a first spring and comprising a recessed seat circumferentially surrounding an aperture through the first poppet;

(c) a second poppet biased toward the aperture by a second spring; and

(d) a seal seated into the recessed seat, comprising an axially directed first surface for sealing the first poppet against the shoulder, and a radially inwardly directed second surface for sealing the second poppet outside the aperture.

26. (New) A bi-directional valve comprising:

(a) a valve body comprising a radially inwardly directed shoulder and defining a fluid passage;

(b) a first poppet biased toward the shoulder by a first spring and comprising a recessed seat circumferentially surrounding an aperture having an inner diameter;

(c) a second poppet biased toward the aperture by a second spring; and

(d) a seal seated into the recessed seat, comprising an axially directed first surface for sealing the first poppet against the shoulder, and a radially inwardly directed second surface for sealing the second poppet, the second surface having a radially inwardly directed extent no greater than the inner diameter of the aperture.

27. (New) A bi-directional valve comprising:

(a) a valve body comprising a radially inwardly directed shoulder and defining a fluid passage;

(b) a first poppet biased toward the shoulder by a first spring and comprising a recessed seat circumferentially surrounding an aperture having an inner diameter;

(c) a second poppet biased toward the aperture by a second spring; and

(d) a seal seated into the recessed seat, comprising an axially directed first surface for sealing the first poppet against the shoulder, and an annular radially inwardly directed second surface for sealing the second poppet radially outwardly beyond the inner diameter of the aperture.